Right of Way Management Practices of North American Pipeline Companies

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B. C. HYDRO

RIGHT OF WAY MANAGEMENT PRACTICES OF NORTH AMERICAN PIPELINE COMPANIES

B. C. Hydro
Properties Division
Properties Service Department
9 - 1045 Howe Street
Vancouver, B. C.
V6Z 2B1

August 1985

H3395R

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SUMMARY

The purpose of this report is to review right of way management practices of North American pipeline companies, with emphasis on encroachment management and prevention. A total of 18 pipeline companies, including B. C. Hydro, were contacted. The principal findings are:

1. Management practices of B. C. Hydro's gas transmission rights of way are similar to other pipeline companies.

2. B. C. Hydro's definitions of encroachments and allowable uses within rights of way are consistent with other pipeline companies.

3. Subdivision and land use planning regulations elsewhere appear similar. Sixteen utilities comments on subdivision applications involving rights of way to local governments.

4. Six utilities reported instances of where local governments require building setbacks from the right of way.

5. B. C. Hydro follows the pattern of the other pipeline companies in enforcement of the right of way agreement. Thirteen companies require the removal of encroachments.

6. B. C. Hydro has never tested its right of way agreements in court. Ten of the 18 utilities have; all indicating they had been successful.

7. All of the utilities use some method to prevent encroachments, pipeline markers being the most common. Seven of the utilities have public awareness programs. B. C. Hydro is in the process of establishing a public awareness program.

RECOMMENDATIONS

The findings in this survey suggest the following:

1. B. C. Hydro should continue to consistently enforce its rights to ensure protection of the pipeline system.

2. Hydro should continue to work with local governments to have input in subdivisions involving Hydro gas pipeline rights of way.

3. Hydro should continue to develop an ongoing liaison with property owners to make them aware of the pipeline right of way and the rights and responsibilities attached to it.

4. Hydro should establish and maintain contacts with developers and contractors to make them aware of the potential hazards of the pipeline.

1. INTRODUCTION

B. C. Hydro has been examining methods for increasing the effectiveness of management of its gas transmission rights of way; particularly reducing the number of encroachments and the consequent loss of identity of these rights of way. As part of this process, it was realized that it would be useful to examine the practices of other pipeline companies in North America.

The purpose of this study is to gain insight into the right of way management practices of North American pipeline companies, with emphasis on encroachment management and prevention.

The study has two main components: a report section analyzing questionnaire responses from 18 pipeline companies; and tables in Appendix C which provide a listing of the individual responses by the participating companies which are useful for comparison.

2. METHODOLOGY

An initial test of a questionnaire was undertaken in early 1983. Subsequently, a slightly revised questionnaire was formulated. The new questionnaire was circulated in September 1983 to members of the Pipeline Committee of the International Right of Way Association. Telephone interviews were first done, followed by mail-out questionnaires to gather fuller responses. The results of this survey are based on the responses of 18 pipeline

companies. However, as some of the utilities responded by telephone only and not all questions were answered, figures do not always total 18. A list of the participating pipeline companies is given in Appendix A.

3. SURVEY ANALYSIS

This section provides an analysis of the questionnaire responses as tabulated in Tables C1 - C8 in Appendix C. It is divided into four parts: use of right of way, right of way acquistion, subdivision development and right of way management. The first part describes the uses allowed by the utilities on rights of way and what uses are considered encroachments. The second part describes the acquisition procedures as they relate to the right of way. The third part describes the subdivision process and how it impacts the right of way. The final part outlines three key management procedures which are designed to prevent encroachments. B. C. Hydro responses are included as part of the analysis.

Of the 18 companies participating in the questionnaire, B. C. Hydro has the smallest transmission system in kilometres of rights of way, but has the largest percentage of its rights of way in urban areas. It should be noted that direct comparisons between companies are difficult to make because some included both distribution and transmission pipelines in their responses in Appendix C.

3.1 Land Use Within Rights of Way

Certain land use activities are perceived as potential problems to pipeline companies. Activities which are not authorized or considered undesirable by pipeline companies are called encroachments.

Utilities see encroachments as the use of the area within a statutory right of way or easement in contravention of the terms of the right of way agreement. The results of the survey indicate that all companies strive to preserve their rights of way to ensure safety and integrity. To do this, unauthorized or conflicting uses on rights of way are identified and usually removed. However, there are differences between companies in their definitions of encroachments and their methods for handling them. The following sections compare what uses are allowed within the rights of way of the 18 pipeline companies.

(a) Construction of Permanent Facilities

Table 1 provides a list of permanent facilities and a summary of responses by utilities on what is allowable on the right of way and under what conditions. As can be seen, most of the companies either prohibit or regulate the construction of permanent facilities within the right of way.

TABLE 1

SUMMARY OF PIPELINE COMPANY POLICIES REGARDING CONSTRUCTION OF PERMANENT FACILITIES WITHIN RIGHTS OF WAY

Type of Use/Facility	Utility Response: Totally Banned	By Permit Only	Without Permit	Encouraged
1. Construction of habitable buildings	17	1		
2. Construction of other buildings (barn, chicken house, garden shed)	10	8		
3. Construction of balconies, sundecks, stairs, or other structures which normally adjoin buildings	13	5		
4. Construction of fish ponds or below ground swimming pools	12	1	1	
5. Above ground swimming pools	6	4	1	
6. Driving piles	9	6		
7 Laying asphalt paving	1	14		
8 Laying concrete paving	1	15		
9. Construction of fences and gates		6	8	
10. Installation of drainage or septic disposal fields	4	5	2	
11. Reduction of ground cover	4	10		
12. Addition to ground cover		11	3	
13. Blasting	5	6		
14. Drilling of wells or other boreholes	8	7		

Note that responses do not always add up to 18 because some companies did not respond to all questions.

(b) Storage

Table 2 indicates a split in utility policies on short term storage of vehicles, where five of 14 respondents do not attempt to control vehicle parking. General storage of vehicles, equipment and materials is mostly regulated and in some cases totally banned by some companies.

B. C. Hydro's policy is to regulate parking and ban storage of materials and equipment within gas transmission rights of way.

TABLE 2

SUMMARY OF PIPELINE COMPANY POLICIES REGARDING STORAGE ON RIGHTS OF WAY

Type of Use	Utility Response			
	Totally Banned	By Permit Only	Without Permit	Encouraged
Vehicle parking (short term)	2	7	5	
Storage of equipment and vehicles	4	6	2	
Stacking or storing materials (lumber, bricks, gravel, etc.)	2	7	2	

(c) Linear Crossings of Rights of Way

As Table 3 suggests, most companies prefer to maintain control over various kinds of crossings that could affect the operation of the pipeline. B. C. Hydro's practice is consistent in requiring permits for crossings.

TABLE 3

SUMMARY OF PIPELINE COMPANY POLICIES REGARDING LINEAR CROSSINGS OF THEIR RIGHTS OF WAY

Type of Use	Company Response			
	Totally Banned	By Permit Only	Without Permit	Encouraged
Crossings by ditches or drainage channels		11	1	
Crossings by public highways, railways or roads		13	1	
Crossings by private roadways, driveways	1	11	2	
Crossings by underground culverts, pipes, cables, ducts		11		

(d) Parallel Uses Within Rights of Way

Acceptance of parallel uses received a mixed response from the companies. Most of the companies prefer to either not allow parallel uses or regulate them. B. C. Hydro does not allow parallel uses except for ditches and drainage channels, which are regulated.

TABLE 4

SUMMARY OF PIPELINE COMPANY POLICIES REGARDING PARALLEL LINEAR USES WITHIN RIGHTS OF WAY

Type of Use	Company Response			
	Totally Banned	By Permit Only	Without Permit	Encouraged
Parallel or near parallel culverts, pipes, cables, ducts	5	6	1	
Parallel or near parallel ditches or drainage channels	6	6	3	
Parallel or near parallel highways, railways or roads	7	6	3	
Parallel or near parallel private roads	5	7	2	

(e) Cultivation

The cultivation of lands can be a beneficial use of gas pipeline rights of way. Silviculture (the growing of trees) falls into two general categories: trees over 6 feet tall; and 6 feet or shorter.

Nine of the 18 respondents prohibit the growth of trees over 6 feet. Concerns about large trees are the masking of the ground to aerial inspection, loss of identification of the right of way and possible damage to the pipe by deep rooting systems. Trees under 6 feet in height pose less of a problem, and are generally allowed either by permit (5) or without restriction (10).

TABLE 5

SUMMARY OF PIPELINE COMPANY RESPONSES REGARDING CULTIVATION PRACTICES WITHIN RIGHTS OF WAY

	Utility Response			
Type of Use	Totally Banned	By Permit Only	Without Permit	Encouraged
Planting and harvesting of trees over 6 feet tall	9	3	6	
Planting and harvesting of trees 6 feet tall or shorter	2	5	10	
Raising of crops or grazing of livestock			8	6

None of the utilities regulate the raising of crops or grazing livestock; and six utilities encourage the practice.

(f) Recreational Use

In general, most recreation activities are accepted within rights of way. Two companies, Pan Eastern and Trans Mountain Pipelines do not allow hiking activities. Transmountain Pipeline is concerned about possible erosion as a result of hiking and motocross trails on rights of way.

B. C. Hydro, in general, has no objection to such activities. However, the property owner has the ultimate authority to grant permission for other than pipeline related uses, subject to government regulation.

TABLE 6

SUMMARY OF PIPELINE COMPANY RESPONSES REGARDING RECREATION USES WITHIN RIGHTS OF WAY

Type of Use	Company Response			
	Totally Banned	By Permit Only	Without Permit	Encouraged
Use as hiking, horse riding or cycle paths and trails	2	3	2	4
Golf courses, football fields, baseball fields	1	5	3	2
Use as parks or recreation areas	1	3	3	4

3.2 Right of Way Acquisition

As Table C4 in Appendix C shows, all of the companies acquire most of their rights of way by easement. Modern right of way agreement documents seem to be similar throughout the pipeline industry; they specify that the company is being granted the right to install, maintain, repair and in some cases remove the pipeline and appliances, to maintain the right of way as a defined strip of land wherein these rights apply and to keep the right of way clear of obstructions to maintenance and operation; the owner generally covenants not to place or allow to be placed any structure or obstruction within the right of way, or to do anything (such as excavating) which may endanger the pipeline. The signed documents are registered against the title of the land; in the United States, they are filed in the county records, and in Canada they are filed in the Land Registry Office (also known as Land Title Office in B. C.).

Compensation for acquisition of an easement is generally handled by the payment of a one time lump sum equal to the loss in market value caused by imposition of the easement, and any special value to the owner. Compensation varies according to existing use of the land and past court decisions on what is considered fair compensation.

3.3 Subdivision Development in Vicinity of Right of Way

The subdivision and development of lands along an existing right of way corridor can potentially have significant impacts on the management of the pipeline. The purpose of this section is to describe government procedures that exist to regulate the development of lands crossed by a right of way.

Seven of the pipeline companies indicated there are some form of regulatory instruments governing development along rights of way. The respondents identified federal, state and local legislation and safety standards.

Subdivisions adjacent to the right of way can affect the use of land within rights of way. As a result pipeline companies wish to be consulted and most of them have some form of referral system to ensure there are no significant conflicts with company management requirements.

Subdivision plan referral is handled as follows:

	No. of Pipeline Companies		
Referral	Yes	No	No Response
for comment only	16	1	1
for approval	9	9	-
power to reject	4	7	7

Sixteen of the companies are asked to comment upon subdivisions involving rights of way. One half of the companies have subdivision plans referred to them for approval.

B. C. Hydro has the right to approve all subdivision plans where there is a B. C. Hydro charge against the title. This right is waived except in cases where B. C. Hydro's interests are affected where there is dedication of land to the Crown, e.g. roads, parks, streams, etc.

Four companies have the authority to reject a subdivision plan; two of which are Canadian.

Some U. S. pipeline companies (e.g. Columbia Gas) hold the developer responsible if lots are laid out in such a way as to adversely affect subsequent owner's use. Thus, it is in the developers interest to consult with the utility to avoid future problems.

One means of restricting development within rights of way is by establishing setback distances of buildings from the right of way or pipeline. Six of the utilities indicated setbacks are required by some of the municipalities they operate within. For example, the Cities of Calgary and

Edmonton require 15 m (50 ft) setbacks for habitable buildings from the edge of the right of way for pipelines transporting high pressure carbon products. Respondents stated the setback requirements ranged from 10 to 100 feet.

3.4 Management of Rights of Way

There are three principal components to managing rights of way to prevent encroachments: patrol, enforcement and prevention. All utilities interviewed include these components in their right of management program.

(a) Patrol

All of the pipeline companies use regular patrols to identify any activities that may endanger the pipeline. As shown below air patrols are used by all the companies, while foot and vehicle patrols are also used by some companies:

Method of Patrol	No. of Utilities
Air	18
Vehicle	5
Foot	8

The frequency of air patrols varies considerably amongst the companies. Some companies noted that the frequency of flights increased in urban areas.

(b) Enforcement

Enforcement is based on the right of way agreement. All of the companies obtain their rights of way by the purchase of easements. The land over which a right of way exists remains the property of the owner in fee, subject to the loss of certain rights specified in the right of way agreement. It is the mutual responsibility of the owner and the pipeline company to live up to the terms of the agreement.

In general, the companies deal with each encroachment individually and negotiations are commenced with the land owner for its removal. The covenants in the document which created the right of way are relied upon in removing or preventing a use of the right of way which is not permitted. Most of the participating companies (13) agreed that encroachments should be removed in order to eliminate hazards to the pipeline, permit access to the right of way for maintenance and emergency crews, and maintain the visibility of the corridor. Four companies do not force the removal of the encroachment. Their responsibility apparently

rests when they have notified the encroacher on the risks involved. It was also agreed that encroachments should be dealt with as soon as they occur; if there is any delay, the number and severity of encroachments will escalate very quickly, with correspondingly increased difficulty in removal.

Ten of the utilities have tested their rights of way agreements in the courts. One American company noted the courts have favoured the company where it is demonstrated that removal of an encroachment is reasonably required to maintain the pipeline. Another American company noted courts have held that time is of the essence in determining liability, if there is too long a delay in enforcing the agreement the company may be considered negligent.

No Canadian company contacted had attempted to test their right of way agreement in court specifically to remove encroachments.

(c) Prevention

Encroachment prevention can be comprised of several elements. Patrolling the right of way is one form of prevention. A public information and consultation program is another. Seven of the 18 pipeline companies

provide some form of public information program. Information is included in annual newsletters, calendars, pamphlets and even small trinkets such as keychains. These items are sent to homeowners along the right of way, developers, surveyors and contractors to remind them of the presence of a potentially hazardous line and whom to contact prior to working within the right of way.

One company stated that the right of way agreement is the basis for information. At B. C. Hydro this has not been found to be adequate, e.g. a subsequent property owner may not be aware of the agreement prior to causing an encroachment.

The pipeline companies had a variety of responses on their methods for handling existing or potential areas of encroachments. Alternatives considered include: relocating the pipeline; purchase the right of way in fee; upgrade the pipeline or reduce operating pressure; and negotiate specifications with subdivision developers.

All of the companies contacted use pipeline markers to identify the right of way. The extent of the markers depends primarily on the density of development.

(d) Accidents

The number of pipeline accidents varied from none to 36 (see Appendix C8). It is probable that different companies have different definitions of accidents, accounting for the variation.

APPENDIX A

LIST OF PARTICIPANTS

LIST OF PARTICIPANTS OF RIGHTS OF WAY QUESTIONNAIRE

1. COLUMBIA GAS TRANSMISSION CORPORATION
   1700 MacCorkle Avenue
   Charleston, West Virginia
   25325

   Mr. John D. Cale
   Manager, Civil Engineering

2. EL PASO NATURAL GAS CO.
   Title/Controls Division
   Right of Way Department
   PO Box 1492
   El Paso, Texas
   79978

   Mr. Ralph Oppenheim

3. INTERPROVINCIAL PIPELINE LTD.
   PO Box 48
   1 First Canadian Place
   Toronto, Ontario
   M5X 1A9

   Mr. R.J.C. Dunsmore
   Manager, Lands Department

4. MOBIL PIPELINE CO.
   PO Box 900
   Dallas, Texas
   75221

   W. L. Grissom
   Manager of Right of Way

5. MOUNTAIN FUEL SUPPLY
   PO Box 11368
   Salt Lake City, Utah
   84139

   Tracey W. Shepherd Jr.
   Director, Property and Right
   of Way Transmission

6. NORTHWEST PIPELINE CO.
   PO Box 1526
   Salt Lake City, Utah
   74110

   Mr. W. A. Thomasson

7. NOVA
PO Box 2535, Station "M"
Calgary, Alberta
T2P 2N6

Mr. Miles McCall

8. OKLAHOMA NATURAL GAS CO.
PO Box 871
Tulsa, Oklahoma
74102

John Knecht, Manager
Right of Way and Real
Estate Department

9. PACIFIC GAS AND ELECTRIC CO.
77 Beale Street
San Francisco, California
94106

J. W. Page
Land Department

10. PACIFIC GAS TRANSMISSION CO.
PO Box 4389, Station "B"
Spokane, Washington

Mr. Ross W. Woodward
Right of Way Supervisor

11. PAN HANDLE EASTERN PIPELINE CO.
PO Box 15
Zionsville, Indiana
46077

Mr. Russ Oden

12. SHELL PIPE LINE CORPORATION
PO Box 2648
Houston, Texas
77252

W. J. Jackson, Staff Land Agent
Land and Environmental Dept.

13. TRANS CANADA PIPELINES LTD.
PO Box 54
Commerce Court West
Toronto, Ontario
M5L 1C2

Mr. Les C. Gillespie

14. TRANS MOUNTAIN PIPELINE CO. LTD.
800 - 601 West Broadway
Vancouver, B. C.
V5Z 4C5

Mr. Mel Kobayashi

15. PACIFIC NORTHERN GAS LTD.
1333 West Georgia Street
Vancouver, B. C.
V6E 3K9

B.G.E. (Bernie) Guichon, Manager
Lands and Right of Way Division

16. GAZ METROPOLITAN INC.
1717 Du Harre
Montreal, Quebec
H2K 2X3

Mrs. Louise Martin

17. WESTCOAST TRANSMISSION CO. LTD.
1333 West Georgia Street
Vancouver, B. C.
V6E 3K9

B.G.E. (Bernie) Guichon, Manager
Lands and Right of Way Division

18. B. C. HYDRO AND POWER AUTHORITY
Fraser Valley Gas Transmission
and Distribution Department
16705 Fraser Highway
Surrey, B. C.
V3S 2X7

Howie Wong
Pipeline Right of Way Engineer

APPENDIX B

RIGHTS OF WAY QUESTIONNAIRE

RIGHTS OF WAY QUESTIONNAIRE

EXPLANATORY NOTES: In this survey, we are interested in how your company manages its major pipeline rights of way, i.e. those containing larger diameter pipes operating at high pressure (typically 275 psig and higher).

The questionnaire has been divided into ten sections as follows:

1.0 General
2.0 Pipeline and Right of Way Information
3.0 Right of Way Use
4.0 Right of Way Agreements/Ownership
5.0 Subdivisions
6.0 Patrol/Records
7.0 Enforcement
8.0 Prevention
9.0 Safety
10.0 Follow-Up

1.0 GENERAL

1.1 Name and address of company _____

_____

_____

1.2 Geographical area covered _____

_____

_____

2.0 PIPELINE AND RIGHT OF WAY INFORMATION

2.1 Maximum allowable operating pressure(s) of pipelines operating in right of way _____

_____

2.2 Total miles of pipeline right of way _____

2.3 Total miles of joint right of way with other utility _____
Type of utility _____

2.4 Estimated percentage of right of way through:

(a) residential area _____%
(b) industrial area _____%
(c) Industrial/commercial area _____%
(d) farmland _____%
(e) wilderness/forest area _____%
(f) recreational area _____%

2.5 Miles of pipeline right of way owned in fee by company _____

_____

2.6 Range of pipeline diameters in use on right of way and mileages of each _____

_____

2.7 Maximum width of pipeline right of way permitted by legislation, regulation or other authority _____

_____

2.8 Normal width of pipeline right of way used by company _____

_____

2.9 Minimum width of pipeline right of way used by company _____

_____

2.10 Normal distance from centreline of pipeline to nearest right of way boundary _____

_____

2.11 Minimum distance from centreline of pipeline to nearest right of way boundary _____

_____

2.12 Normal distance from centreline of pipeline to nearest habitable building _____

_____

2.13 Minimum distance from centreline of pipeline to nearest habitable building _____

_____

3.0 RIGHT OF WAY USE

3.1 Listed below is a variety of possible activities by others within gas pipeline rights of way. Each activity could be totally banned, allowed only by permit from the pipeline operator, allowed without permit or actively encouraged. Please check in the appropriate box beside each possible activity.

	Totally Banned	By Permit Only	Without Permit	Encouraged
Construction of habitable buildings				
Construction of other buildings (barn, chicken house, garden shed)				
Construction of balconies, sundecks, stairs or other structures which normally adjoin buildings				
Planting and harvesting of trees over 2 m tall				
Planting and harvesting of trees 2 m tall or shorter				
Drilling of wells or other boreholes				
Driving piles				
Laying asphalt paving				
Laying concrete paving				
Vehicle parking (short term)				
Storage of equipment and vehicles				
Stacking or storing materials (lumber, bricks, gravel, etc.)				
Crossings by underground culverts, pipes, cables, ducts				

	Totally Banned	By Permit Only	Without Permit	Encouraged
Crossings by ditches or drainage channels				
Crossings by public highways, railways or roads				
Crossings by private roadways, driveways				
Parallel or near parallel culverts, pipes, cables, ducts				
Parallel or near parallel ditches or drainage channels				
Parallel or near parallel highways, railways or roads				
Parallel or near parallel private roads				
Blasting				
Reduction of ground cover				
Addition to ground cover				
Installation of drainage or septic disposal fields				
Construction of fish ponds or below ground swimming pools				
Above ground swimming pools				
Raising of crops or grazing of livestock				
Golf courses, football fields, baseball fields				

	Totally Banned	By Permit Only	Without Permit	Encouraged
Use as parks or recreation areas				
Use as hiking, horse riding or cycle paths and trails				
Construction of fences and gates				

4. RIGHT OF WAY AGREEMENTS/OWNERSHIP

How are your rights of way established? i.e. fee-simple purchase, easement, licence of occupation, other. _____
_____
_____
_____

How are your rights protected in the event of a transfer of title to the land? _____
_____
_____

Do the rights acquired cover only the installation and operation of the pipeline or are rights of access and/or maintenance also included? _____
_____

How is the owner compensated for the right of way?

(a) one-time lump sum, equal to X percentage of the market value of the land;
(b) one-time lump sum plus annual rent;
(c) annual rental fee only;
(d) other (specify) _____
_____
_____

5.0 SUBDIVISIONS

Are there any statutes or regulations governing subdivision developments over or adjacent to existing pipeline rights of way? If so, what are they? _____

_____

_____

_____

In general, what statutes or regulations govern your pipelines and rights of way, and the activities of others near them? _____

_____

_____

_____

Are subdivision plans involving your rights of way submitted to you:

(a) for comment?
(b) for approval?

Are there any statutes or regulations requiring building setback distances from the right of way boundary?

If yes, what distance?

Have you ever had to move, reclassify or replace a pipe or its protective devices as a result of a change in land use? _____

_____

_____

_____

If yes, who absorbed the cost?

6.0 PATROLS/RECORDS

6.1 How do you discover encroachments on your rights of way (foot patrol, air patrol, video monitoring, surveying crew, etc.)? _____

6.2 How frequently do you patrol your rights of way?

(a) by air patrol _____
(b) by foot patrol _____
(c) by other means, specify _____

6.3 Do you have an established procedure for recording encroachments? If yes, please describe. _____

6.4 Over the past few years, encroachments along your rights of way have:

_____ increased _____ remained the same _____ decreased

6.5 Have you experienced any of the following encroachments, and if so, would you indicate the approximate number of instances in the past year and the past 5 years if applicable.

	No	Yes-Past Year	5 Years
(a) Buildings			
(b) Paving			
(c) Drain Lines			
(d) Driveways			
(e) Water Wells			
(f) Material Storage			
(g) Other			
Temporary logging road crossings			

7.0 EMFORCEMENT

7.1 Do you have a definite corporate policy for handling encroachments? If yes, could you summarize it. _____

7.2 Do you follow a set of guidelines in dealing with encroachments or is each encroachment (or request to encroach) treated on an individual basis? _____

7.3 Does your treatment of encroachments (or requests to encroach) vary depending upon whether the right of way is: (a) planned for future use, contains no pipeline; (b) fully utilized or (c) partially utilized _____

7.4 Do you have encroachments removed? If so, by what means? _____

7.5 Have you ever tested your right of way agreement in court? Please provide details. _____

7.6 Do you ever provide compensation when an encroachment is removed? _____

7.7 Conversely, do you ever bill the encroaching party for costs incurred in removing an encroachment? _____

7.8 Would you say that your company:

_____ (a) Attempts to maintain its right of way as clearly identifiable corridors.

_____ (b) Does not object to encroachments which obsure the right of way identity provided that they do not pose a hazard.

_____ (c) Other. Please specify. _____

8.0 PREVENTION

8.1 Do you have an active program to prevent encroachments from occurring? If yes, please provide details. _____

_____

_____

8.2 Do you mail out notices to property owners along your rights of way or have any other type of public information program? If yes, please provide details. _____

_____

_____

8.3 In areas where there is a significant encroachment problem or potential for one (e.g. future residential subdivision) do you do any of the following:

(a) purchase the right of way in fee;
(b) purchase additional right of way (i.e. increase the width of the right of way);
(c) renegotiate more stringuent right of way agreements;
(d) relocate the pipeline;
(e) other, please specify.

_____

_____

_____

_____

_____

_____

8.4 Do you spend money to develop the rights of way for compatible uses, e.g. bicycle trails, playing fields, park strips? _____

_____

_____

8.5 How are your rights of way identified in the field? _____

_____

_____

8.6 How often are pipeline markers used? _____

_____

_____

9.0 SAFETY

9.1 What is your accident experience with pipelines located in rights of way? What percentage of accidents can be attributed to encroachments, i.e. occurred as a result of the encroachment being installed or occurred because the third party was unaware that a right of way existed due to the fact that existing encroachments obscured its identity.

	Number of Pipeline Accidents on ROW's	
Year*	Total	Number Due To Encroachments
1983		
1982		
1981		
1980		
1979		
1978		

* or whatever period you may have statistics for.

10.0 FOLLOW-UP

10.1 For follow-up or clarification please contact:

10.2 May we have permission to circulate your response to the companies that have participated in this survey?

_____ Yes _____ No

10.3 Would you like to receive the results of our survey?

_____ Yes _____ No

Thank you very much for your time and effort.

APPENDIX C

TABLES SHOWING UTILITY RESPONSES
TO RIGHT OF WAY QUESTIONNAIRE

Table C1-2	Utility Right of Way and Pipeline Data
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C1-2: UTILITY RIGHT OF WAY AND PIPELINE DATA

1.1	1.2	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	2.10	2.11	2.12	2.13
Utility (Head-Quarters)	Geograph-ical Area Of Rights Of Way	Maximum Allowable Operating Pressure (Pounds Per Square Inch)	Total Miles Of Pipe-line Right Of Way	Total Use Of Joint R/W With Other Utilities	Estimated Percentage Of R/W Through:	R/W Owned In Fee By Utility	Range And Dis-tance Of Pipeline Diameters	Maximum Width Of R/W Permitted By Regulation	Normal Width Of R/W Used by Utility	Minimum Width Of R/W Used By Utility	Normal Distance From Centre-line To R/W Boundary	Minimum Distance From Centre-line To R/W Boundary	Normal Distance From Centreline To Nearest Habitable Building	Minimum Distance From Centreline To Nearest Habitable Building
1. Columbia Transmission Corporation (Charleston W. Va)	New York, Pennsylvania, Maryland, Virginia, W. Virginia, Ohio, Kentucky	2000	8,000 production-storage 10,200 transmission	Less than 1%	(a) Residential 5% (b) Industrial 5% (c) Commercial 5% (d) Agriculture 50% (e) Wilderness 34% (f) Recreation 1%	Less than 1%	2- 3" - 350 mi 4- 6" - 1000 mi 8-10" - 880 mi 12-16" - 1440 mi 18-22" - 4890 mi 24" - 660 mi 30" - 250 mi 36" - 160 mi	not regulated	50' permanent 25' additional temporary construction R/W	None. Many R/W's have no specified width	15' - 25'	N/A	25'	N/A
2. El Paso Natural Gas Co. (El Paso, Texas)	Arizona, New Mexico, Colorado, Oklahoma	900	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3. Inter Provincial Pipeline Ltd. (Toronto)	Alta, Sask, Man, through USA around Great Lakes; Ont, Quebec	1050	1,434 mi (not incl. USA)	75 mi parallels electric transmission	(a) Residential 1% (b) Industrial 1% (c) Commercial 3% (d) Agriculture 89% (e) Wilderness 5% (f) Recreation 1%	Less than 1%	12-48" outside diameter	New NEB Act allows more than 60' if warranted	60'	10'	20'	5'	More than 100 yds	20'
4. Mobil Pipe-line Co. (Dallas)	26 states in U. S.	1500 - 1800	5 - 6,000	None	N/A	Small amount	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5. Mountain Fuel Supply (Salt Lake City)	Utah, Colorado, Wyoming	Limited by wall thickness and popula-tion density	12,000	N/A	(a) Residential 50% (b) Industrial 10% (c) Commerical 20% (d) Agriculture 9% (e) Wilderness 10% (f) Recreation 1%	None	2- 4" - 7000 mi 4- 8" - 2000 mi 8-36" - 3000 mi	Not regulated	50' transmission 15' distribution	80'	25'	Overlapping	5' distribution 5-100' transmission	2'
6. Northwest Pipeline Co. (Salt Lake City)	Utah, Wyoming, Wash, Oregon, New Mexico, Idaho, Colarado	750	12,000	200 mi parallels natural gas pipe-line	(a) Residential 10% (b) Industrial 10% (c) Commerical 20% (d) Agriculture 50% (e) Wilderness 8% (f) Recreation 2%	25 mi	4-30"	None	75'	75' on lg. diameter line 50' on sm. diameter line	Usually 20' on one side and 55' on other side	Not less than 10'	20'	10'
7. Nova (Calgary, Alberta)	Province of Alberta	1440	6,000	None	(a) Residential 5% (b) Industrial 4% (c) Commercial 5% (d) Agriculture 85% (e) Wilderness 0% (f) Recreation 1%	None	N/A	N/A	80' ( )	60' ( )	N/A	N/A	N/A	N/A
8. Oklahoma Natural Gas Co. (Tulsa, Oklahoma)	State of Oklahoma	1100	6,500	None		Small amount	2-30"	None	50'	25'	25'	12.5'	25'	10'
9. Pacific Gas & Electric Co. (San Francisco)	Alberta, Idaho, Oregon & California	N/A	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A	N/A	N/A

N/A No Response
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C1-2: UTILITY OF RIGHT OF WAY AND PIPELINE DATA (Cont'd)

1.1	1.2	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	2.10	2.11	2.12	2.13
Utility (Head-Quarters)	Geographical Area Of Rights Of Way	Maximum Allowable Operating Pressure (Pounds Per Square Inch)	Total Miles Of Pipeline Right Of Way	Total Use Of Joint R/W With Other Utilities	Estimated Percentage Of R/W Through:	R/W Owned In Fee By Utility	Range And Distance Of Pipeline Diameters	Maximum Width Of R/W Permitted by Regulation	Normal Width Of R/W Used By Utility	Minimum Width Of R/W Used By Utility	Normal Distance From Centreline To R/W Boundary	Minimum Distance From Centreline To R/W Boundary	Normal Distance From Centreline To Nearest Habitable Building	Minimum Distance From Centreline To Nearest Habitable Building
10. Pacific Gas Transmission Co. (Spokane, Washington)	Northwest USA	911	612	None	(a) Residential 10% (b) Industrial 1% (c) Commercial 1% (d) Agriculture 45% (e) Wilderness 33% (f) Recreation 10%	1%	36" - 638 mi 42" - 160 mi	None	100'	50'	30'	25'	40+	30'
11. Panhandle Eastern Pipeline Co. (Zionsville, Indiana)	Texas, Oklahoma, Kansas, Missourri, Ill, Ind, Mich, Ohio, Colorado	800	1500 laterals 5000 gathering 5000 transmission	None	N/A	None	up to 30"	66' by expropriation 100' otherwise	100'	N/A	N/A	N/A	N/A	N/A
12. Shell Pipe-Line Co. (Houston)	Most of Centrel and Western USA	2000	N/A	N/A	N/A	Minimal, around Houston - leased back to adjacent owners	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13. Trans Canada Pipelines Ltd. (Toronto)	Alta, Sask, Man, Ontario, Quebed, Vermont	870-970	6,000	25 mi electric	N/A	None	48"	Exprop. 60' otherwise as required (65' min.)	65-90' some parts 140'	N/A	N/A	N/A	N/A	N/A
14. Trans Mountain Pipeline Co. Ltd. (Vancouver)	Alberta, British Columbia	Variable 658-1138	712	None	No specific data; most is farmland and wilderness/ forest	None	24-30"	None	60'	20' in Jasper National Park	20'	10'	N/A	N/A
15. Pacific Northern Gas Ltd. (Vancouver)	Central British Columbia	1414	500	10 mi electric	(a) Residential .4% (b) Industrial .3% (c) Commercial .3% (d) Agriculture 20.0% (e) Wilderness 78.8% (f) Recreation .2%	None	10" - 275 mi 8" - 92 mi 2- 6" - 133 mi	None	60'	40'	10'	5'	N/A	N/A
16. GAZ Metropolitan Inc. (Montreal)	Quebec	700	N/A	N/A	N/A	None	N/A	30'	5, 10 and 30'	5'	1'	6"	20-25'	10'
17. Westcoast Transmission Company (Vancouver)	British Columbia and North-West Alberta	1170	2,175	481 20 mi oil 461 mi electric	(a) Residential 0.8% (b) Industrial 0.5% (c) Commercial 0.2% (d) Agriculture 25.0% (e) Wilderness 73.0% (f) Recreation	1 mile	30" - 870 mi 36" - 580 mi 6-26" - 1300 mi of gathering lines	None	100' for two pipelines 60' for one	60'	15'	7'	N/A	N/A
18. B. C. Hydro and Power Authority (Vancouver)	Southwestern British Columbia	585	108	41 mi electric	(a) Residential 31.0% (b) Industrial 3.0% (c) Commercial 10.0% (d) Agriculture 30.0% (e) Wilderness 25.0% (f) Recreation 1.0%	9.5 mi (6% of R/W)	N/A	50' and 60'	50'	30'	15'	15'	30'	15'

N/A No Response
H30428

C3: RIGHT OF WAY USE - UTILITY RESPONSES

Listed below is a variety of possible activities by others within gas pipeline rights of way. Each activity could be totally banned, allowed only by permit from the pipeline operator, allowed without permit or actively encouraged. The numbers within each box relate to the utility's response. Utilities are numbered according to the list in Appendix A.

	Totally Banned	By Permit Only	Without Permit	Encouraged
Construction of habitable buildings	1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18	5		
Construction of other buildings (barn, chicken house, garden shed)	1, 2, 6, 8, 9, 10, 11, 13, 14, 18	3, 4, 5, 7, 12, 15, 16, 17		
Construction of balconies, sundecks, stairs or other structures which normally adjoin buildings	1, 2, 6, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18	3, 4, 5, 6, 12		
Planting and harvesting of trees over 2 m tall	1, 2, 4, 9, 11, 15, 16, 17, 18	6, 12, 13	3, 5, 7, 8, 10, 14	
Planting and harvesting of trees 2 m tall or shorter	1, 9	2, 4, 6, 12, 18	3, 5, 7, 8, 10, 13, 14, 15, 16, 17	
Drilling of wells or other boreholes	2, 4, 9, 10, 13, 14, 16, 18	1, 3, 5, 6, 8, 15, 17		
Driving piles	2, 4, 6, 9, 10, 13, 14, 16, 18	1, 3, 5, 8, 15, 17		
Laying asphalt paving	12, 13	1, 2, 3, 4, 5, 6, 8, 9, 10, 12, 14, 15, 16, 17		

	Totally Banned	By Permit Only	Without Permit	Encouraged
Laying concrete paving	13	1, 2, 3, 4, 5, 6, 8, 9, 10, 12, 14, 15, 16, 17, 18		
Vehicle parking (short term)	11, 13	2, 3, 5, 6, 10, 14, 18	1, 8, 15, 16, 17	
Storage of equipment and vehicles	6, 11, 13, 18	3, 5, 10, 14, 15, 17	1, 8, 16	
Stacking or storing materials (lumber, bricks, gravel, etc.)	6, 18	1, 3, 5, 10, 14, 15, 17	8, 16	
Crossings by underground culverts, pipes, cables, ducts		3, 5, 6, 8, 10, 13, 14, 15, 16, 17, 18	1	
Crossings by ditches or drainage channels		3, 5, 6, 8, 10, 13, 14, 15, 16, 17, 18	1	
Crossings by public highways, railways or roads		1, 3, 4, 5, 6, 8, 10, 11, 13, 14, 15, 17, 18	16	
Crossings by private roadways, driveways	6	4, 5, 8, 10, 11, 12, 13, 14, 15, 17, 18	1, 3, 16	
Parallel or near parallel culverts, pipes, cables, ducts	6, 11, 13, 14, 18	3, 5, 10, 15, 16, 17	1, 8	
Parallel or near parallel ditches or drainage channels	6, 10, 11, 12, 13, 14	3, 5, 15, 16, 17, 18	1, 8, 9	
Parallel or near paralled highways, railways or roads	4, 6, 10, 11, 12, 13, 18	3, 5, 14, 15, 16, 17	1, 8, 9	
Parallel or near parallel private roads	4, 6, 11, 13, 18	3, 5, 10, 14, 15, 16, 17	1, 8	
Blasting	1, 3, 5, 10, 14	6, 8, 15, 16, 17, 18		

	Totally Banned	By Permit Only	Without Permit	Encouraged
Reduction of ground cover	2, 5, 10, 14	1, 3, 4, 6, 8, 12, 15, 16, 17, 18		
Addition to ground cover		1, 2, 3, 5, 6, 8, 10, 12, 15, 17, 18	4, 14, 16	
Installation of drainage or septic disposal fields	10, 12, 14, 18	5, 6, 8, 15, 17	1, 3, 16	
Construction of fish ponds or below ground swimming pools	2, 3, 4, 6, 8, 10, 12, 13, 14, 15, 17, 18	5	1	
Above ground swimming pools	6, 8, 10, 12, 14, 18	3, 5, 15, 17	1, 16	
Raising of crops or grazing of livestock			1, 4, 6, 8, 9, 12, 16, 18	3, 5, 10, 14, 15, 17
Golf courses, football fields, baseball fields	14	5, 6, 8, 10, 16	1, 15, 17	3, 18
Use as parks or recreation areas	11, 14	6, 10, 16	1, 8	3, 5, 15, 17, 18
Use as hiking, horse riding or cycle paths and trails	16	6, 10, 14	1, 5, 8	3, 15, 17, 18
Construction of fences and gates		5, 6, 8, 12, 14, 18	1, 3, 4, 9, 10, 15, 16, 17	
Other items (please specify)				

C4: RIGHTS OF WAY AGREEMENTS/OWNERSHIP

Utility	4.1 How are Your Rights of Way Established	4.2 How Are Your Rights Protected in Transfer of Land	4.3 Do the Acquisition Rights Include Access and Maintenance	4.4 How is the Owner Compensated for the R/W (Percentage) of Market Value)
1. Columbia Gas	Easements Licences Permits	Recorded on title as encumbrance	Yes	Negotiated one time lump sum payment
2. El Paso	Easement	Recorded on title. If subdivided, utility registers notice of restrictions and requirements	Old documents do not cover replacement of pipe	One time lump sum
3. Inter Provincial Pipeline	Easement Some leases Very little fee simple	Recorded on title	Yes	One time lump sum plus annual rent
4. Mobil Pipeline	Easement	Recorded on title	Yes	One time lump sum
5. Mountain Fuel Supply	Easements Some licences	Recorded on title	Yes	One time lump sum on private lands. Annual rental on federal lands
6. Northwest Pipeline Co.	Easement Some fee simple	Recorded on title	Yes	One time lump sum
7. Nova	Easement	Recorded on title	Yes	One time lump sum plus annual rent
8. Oklahoma Natural Gas Co.	Easement	Recorded on title	Yes	One time lump sum payment
9. Pacific Gas and Electric Co.	Easement	Recorded on title	Yes	One time lump sum payment
10. Pacific Gas Transmission	Easement	Recorded on title	Yes	One time lump sum payment
11. Panhandle Eastern Pipeline	Easement	Recorded on title	Yes	One time lump sum payment
12. Shell Pipeline Co.	Easement	Recorded on title	Yes	One time lump sum payment
13. Trans Canada Pipeline	Easement	Recorded on title	Yes	One time lump sum payment
14. Trans Mountain Pipeline	Easement	Recorded on title	Yes	One time lump sum payment
15. Pacific Northern Gas Ltd.	Easement	Recorded on title	Yes	One time lump sum payment
16. GAZ Metropolitan	Easement (Servitude)	Recorded on title	Yes	One time lump sum payment
17. Westcoast Transmission	Easement	Recorded on title	Yes	Choice of one time lump sum or annual payment
18. B. C. Hydro	Easement Some fee simple	Recorded on title	Yes	One time lump sum payment

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C5: SUBDIVISIONS

Utility	5.1 (a) Are There Regulatory Instruments Governing Subdivision Developments Adjacent to or Over the R/W	5.1 (b) What Regulatory Instruments Govern Your Pipelines, R/W's and Land Use Activity	5.2 Are Subdivision Plans Involving R/W's Referred to You For Comment?	5.2 Approval?	5.3 If Yes, Can You Refuse A Subdivision Plan on the Grounds of Possible Encroachment Problems	5.4 Are There Government Regs. re Setback Distances of Buildings From the R/W or Pipeline	5.5 If No, Have You Been Able to Obtain Setbacks Anyway	5.6 Have You Ever Had To Downgrade or Replace Pipe as a Result of a Change in Population Density? Who Paid?
1. Columbia Gas	Some county planning commissions require "buffer" zones adjacent to R/W	U. S. Federal Regulatory Commission U. S. DOT Office of Pipeline Safety	No	No	N/A	Yes - various distances	N/A	Yes. Variable, depend-on circumstances
2. El Paso	State, county and civic building codes	DOT Safety Regulation	Yes	Yes	Yes. Counties require utility approval	Yes. Ten feet in some cases	N/A	Yes. Variable
3. Inter Provincial Pipeline	NEB Act	NEB Act	Yes	No	N/A	Yes. Some urban municipalities. Distance varies	N/A	Yes. Developer paid
4. Mobil Pipeline	No	DOT Safety Regulations	If financed, require release. No specific requirement		N/A	N/A	N/A	Yes. Variable
5. Mountain Fuel Supply	No	DOT Safety Regulations	-	Yes	N/A	N/A	N/A	Yes. Utility
6. Northwest Pipeline Co.	Varies by state and county	Federal Energy Commission Regs; 464 Standards	Yes	Yes	N/A	No	N/A	Yes. Variable
7. Nova	Yes. Based on number of residences within given distance of R/W.	N/A	Yes	Yes	Negotiate with developer for land use	No	N/A	Yes. Variable
8. Oklahoma Natural Gas Co.	No	No	Yes	No	Only as a member of planning commission, technical advisory committee, etc.	No	N/A	Yes. Variable
9. Pacific Gas and Electric Co.	Yes, but apply to new lines only	Public Utilities Commission	Yes	Yes	Require a release from utility	N/A	N/A	Yes. Utility
10. Pacific Gas Transmission	No	U. S. DOT Regulations	Yes	Yes	N/A	Yes, FHA Housing requires 10 feet from R/W edge	N/A	Yes. Utility
11. Panhandle Eastern Pipeline	N/A	N/A	Yes	Yes	Not required by law, but developers do to avoid problems	Yes. 100 feet from pipeline	N/A	N/A
12. Shell Pipeline Co.	No	N/A	If county requirements stipulate, or if require release for financing		N/A	Sometimes, depends on R/W width	N/A	Yes. Utility
13. Trans Canada Pipeline	NEB Regulations	N/A	Yes	Yes	No, but developers consult to avoid problems	Yes. 30 feet (20 feet in some cases)	N/A	Yes. Utility
14. Trans Mountain Pipeline	No	NEB	Yes	Yes	Yes	No	No	No
15. Pacific Northern Gas Co.	No	B. C. Pipelines Act	Yes	Road dedication	No	No	No	No
16. GAZ Metropolitan	No	N/A	Yes	No	Yes	No	No	No
17. Westcoast Transmission	No	NEB Act	Yes	Road dedication	No	No	No	Yes. Utility
18. B. C. Hydro	No	B. C. Pipelines Act	Yes by some municipalities	For road crossings	No	No	No	Yes. Utility

N/A No Response
H3032R

C6: PATROLS/RECORDS

Utility	6.1 Method of Patrol	6.2 Frequency	6.3 Procedure For Encroachment Recording	6.4 Over Past Few Years Have Encroachments			6.5 Type of Encroachments in Past Year (5 Years)						
				Increased	Same	Decreased	Bldgs.	Paving	Drain	Driveways	Wells	Material Storage	Other
1. Columbia Gas	Air and foot	Air-annual	Notes, maps	Yes			Yes	Yes	Yes	Yes	Yes	Yes	Surface mining
2. El Paso	Air and truck	Twice/year as required	N/A	N/A	Yes		N/A	N/A	N/A	N/A	N/A	N/A	
3. Inter Provincial Pipeline	Air	Once/week	Pilot reports				No	2(6)	12(30)	2(10)	No	4(8)	
4. Mobil Pipeline	Air	Once/week	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
5. Mountain Fuel Supply	Foot patrol and air	Annually	File kept of encroachments allowed by licence	Yes			3(15)	3(15)	No	(20)	N/A	10	10
6. Northwest Pipeline Co.	Air-foot vehicle	Monthly, some areas weekly	District sends encroachment report to the Encroachment Office	Yes			2	5	2	5	1	1	30
7. Nova	Air	Monthly	N/A	N/A	N/A	N/A							
8. Oklahoma Natural Gas Co.	Air and foot	Monthly and quarterly	No		Yes		Yes						Yes - mobile home
9. Pacific Gas and Electric Co.	Air	Twice/year	N/A	N/A	N/A	N/A							
10. Pacific Gas Transmission	Air patrol - mobile audits	Min. every 10 days	Form is used by districts, forwarded to Spokane for inclusion of encroachments on map	Yes			(3)		(1)	2(10)			
11. Panhandle Eastern Pipeline	Air and auto patrol	Twice/week	Dept. of Transport - any building within 660' is recorded	N/A	N/A	N/A							
12. Shell Pipeline Co.	Air, vehicle and foot	Variable	N/A	N/A	N/A	N/A							
13. Trans Canada Pipeline	Air and foot	Once/week, twice/year											
14. Trans Mountain Pipeline	Air	Weekly	No		Yes		(12)					(6)	
15. Pacific Northern Gas Co.	Air	Quarterly	Checklist		Yes		(1)			(3)			(4)21 temporary logging road crossing
16. GAZ Metropolitan	Foot	Once/year	No		Yes		5(15)	10(50)		8(32)			
17. Westcoast Transmission	Air	Once/month	Checklist		Yes		(1)	(3)	(5)	(20)		(5)	20(100) temporary logging road crossing
18. B. C. Hydro	Air, vehicle and foot	Air once/ week Vehicle/ once/month	Field crew reports to R/W Engineer who may refer to Land Agent	Yes			(211)	(24)	(23)	-	(13)	(64)	(699) trees

N/A No Response
H3025R

C7: ENFORCEMENT OF RIGHT OF WAY AGREEMENTS

	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8(a)	7.8(b)	7.8(c)
Utility	Is There A Corporate Policy For Handling Encroachments	Are There Guidelines For Handling Encroachments	Does Treatment Of Encroachment Vary Depending On Whether R/W Is Planned, Fully Used Or Partly Used	Are Encroachments Removed? By What Means?	Has R/W Agreement Been Tested In Court	Do You Ever Provide Compensation When Encroachment Is Removed	Do You Bill Encroacher For Costs Of Removal	Do You Attempt To Maintain Clear Identifiable Corridor	Company Not Object To Encroachments Which Obscure R/W But Are Not A Direct Hazard	Other
1. Columbia Gas	Treat each case on an individual basis	No	N/A	Yes, court order	Yes, courts tend to favour utility when there first, and considers what is reasonably required to maintain pipeline	N/A	N/A	Yes	-	Subdivisions tend to obscure R/W
2. El Paso	Yes, to keep R/W clear of obstructions to the extent the R/W agreement permits	Each case dealt with on it own merits	N/A	Mostly. Negotiate with owner, depending on severity of encroachment and cost of removal. Owner is put on notice that he is responsible for damages	No	Depends on circumstances	N/A	Yes	-	
3. Inter Provincial Pipeline	Whatever is reasonable for the safe maintenance of the pipeline	Treated on individual basis	Judgment used in each case	Depends	Occasional injunction for entry	Yes, during construction program	This is rare - judgment call	Yes	-	
4. Mobil Pipeline	No	Treated on individual basis	N/A	Yes. Negotiate or court order. Owner is put on notice that liability for damage is his	Yes. Suing encroachments, condemnation. Courts have held that time is of the essence in determining liability	Depends	No	Yes	-	
5. Mountain Fuel Supply	No	Treated on individual basis	No	Yes, if necessary, by rights of easement or licence	No. Existing contracts have not been challenged.	Yes	Yes	-	Yes, if partially obscure	
6. Northwest Pipeline Co.	Yes. Basic policy to keep clear corridor	Individual basis	No	By owner in most cases - by court order	Yes. Loop rights were challenged in Idaho - utility won	No	Yes	Yes		
7. Nova	Emphasis is on prevention	Individual basis	N/A	No	N/A	N/A	N/A	Yes		
8. Oklahoma Natural Gas Co.	Yes. Based on early observation, and personal contact with owner.	Are guidelines, but each case treated separately	Yes	Yes. If they could create a hazard - by negotiation or court proceedings	Parts of R/W agreement tested by being granted restraining orders in cases of hazardous encroachments of our easements	Varies	We do not remove encroachment. Use court orders for removal	-	-	We do not maintain easements as clear identifiable corridors, but we do attempt to identify location of pipeline within easements
9. Pacific Gas and Electric Co.	N/A	Individual basis	N/A	Mostly. Negotiate with owner for removal	Yes. Sue on covenants for removal. Only go to court with winnable cases (wish to avoid setting negative precedent)	Sometimes	N/A	Yes		
10. Pacific Gas Transmission	Handled by permit	Guidelines	Most concerned about operating rights of way	Owner of encroachment is expected to remove after notification	Multiple line rights contested - company prevailed	No	No	Yes		

N/A No Response
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C7: ENFORCEMENT OF RIGHT OF WAY AGREEMENTS (Cont'd)

	Utility	7.1 Is There A Corporate Policy For Handling Encroachments	7.2 Are There Guidelines For Handling Encroachments	7.3 Does Treatment Of Encroachment Vary Depending On Whether R/W Is Planned, Fully Used Or Partly Used	7.4 Are Encroachments Removed? By What Means?	7.5 Has R/W Agreement Been Tested In Court	7.6 Do You Ever Provide Compensation When Encroachment Is Removed	7.7 Do You Bill Encroacher For Costs Of Removal	7.8(a) Do You Attempt To Maintain Clear Identifiable Corridor	7.8(b) Company Not Object To Encroachments Which Obscure R/W But Are Not A Direct Hazard	7.8(c) Other
11.	Panhandle Eastern Pipeline	N/A	N/A	N/A	Yes. Negotiate with owner; if fails then go to court	Yes. Courts have favoured company in removal of trees and buildings	N/A	N/A	Yes		
12.	Shell Pipeline Co.	Yes. To remove any encroachment which is forbidden by R/W agreement; or which poses a hazard or hindrance	Individual basis	N/A	Yes. Negotiate with owner; if fails then go to court	Yes. Sued for encroachment removal on covenant against land	Sometimes	No	Yes		
13.	Trans Canada Pipeline	No	Individual basis	N/A	Yes. Negotiate with landowner	No	Yes	N/A	Yes		
14.	Trans Mountain Pipeline	No	Individual basis	No	Generally, yes. Some are allowed to remain	No	No	No	Yes		
15.	Pacific Northern Gas Ltd.	All foreign line, utility line crossings or infringements require Ministry of Transportation and Highways consent	Individual basis	No	No	No	No	No	Yes		
16.	GAZ Metropolitan	No	Individual basis	No	Yes, by negotiation	Yes, we have the right to obtain servitude by negotiation or expropriation	No	Yes	Yes	Yes	
17.	Westcoast Transmission	All foreign lines and utility line crossings require NEB approval and utility consent	Individual basis	No	No	No	No	No	Yes		
18.	B. C. Hydro	Yes. Based on guidelines	There are guidelines, but each case treated separately	Yes, greatest restrictions for fully and partly used	Yes, by negotiation and legal action if required	No	Yes	No	Yes		

N/A No Response
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CR: PREVENTION AND SAFETY

Utility	8.1 Do You Have An Active Program To Prevent Encroachments	8.2 Do You Have A Public Information Program e.g. Mail Out Notices To Property Owners	8.3 What Is Your Approach To Handling Existing Or Potential Areas Of Encroachments	8.4 Do You Fund Compatible Uses e.g. Bike Trails, Park Strips	8.5 How Is The R/W Identified In The Field	8.6 How Often Are Pipe-Line Markers Used	Number Of Pipeline Accidents On R/W	
							Total	Number Due To Encroachments
1. Columbia Gas	No	Yes	Relocate pipeline if pressure reduction or retesting the facility to qualify for a higher operating pressure is not possible	No	Facility line markers	Angle points and most fences or property lines	N/A	N/A
2. El Paso	N/A	N/A	N/A	N/A	Pipeline marker posts with signs	Road crossings, rural fences	N/A	N/A
3. Inter Provincial Pipeline	Yes. Patrols and information visits to new owners. Annual public awareness visits in Western Division	Yes. Annual PR magazine "The Piper"; calendar mailed to all owners; and safety pamphlets	(a) Purchase R/W in fee (b) Increase R/W width (c) Relocate pipeline (d) Municipalities zone R/W as green space	No	Markers at road crossing and aerial mile posts every 4 miles	See 8.5	None	None
4. Mobil Pipeline	Yes. Patrols try to catch encroachments before completed	No	N/A	N/A	Post, signs and fence posts painted	At road crossings fence is painted. In urban areas extra markers may be installed	N/A	N/A
5. Mountain Fuel Supply	No	The R/W agreement is the basis of information	Work with developers to work out subdivision that meets utility requirements	No	Pipeline markers	Transmission 100% Distribution 50%	No significant accidents attributed to this kind of activity on transmission	
6. Northwest Pipeline Co.	Regular patrols	Mail out information brochure	Each case is different	No	Markers	No further than 100' and line of sight in hilly country, incl. fence lines, roads, railroads, etc.	36	21
7. Nova	Yes. Patrols by maintenance crews	N/A	N/A	N/A	Markers and painted fence posts	Road crossings and deflections	N/A	N/A
8. Oklahoma Natural Gas Co.	Patrols and line markers	No	None identified in question	No	R/W's located by survey, but no identifiable markers. Pipelines within easements are marked	At road crossings and property boundary lines where possible	None	None
9. Pacific Gas and Electric Co.	N/A	No	N/A	N/A	Pipeline markers	At roads, fences and deflections	N/A	N/A

N/A No Response
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C8: PREVENTION AND SAFETY (Cont'd)

	Utility	8.1 Do You Have An Active Program To Prevent Encroachments	8.2 Do You Have A Public Information Program e.g. Mail Out Notices To Property Owners	8.3 What Is Your Approach To Handling Existing Or Potential Areas Of Encroachments	8.4 Do You Fund Compatible Uses e.g. Bike Trails, Park Strips	8.5 How Is The R/W Identified In The Field	8.6 How Often Are Pipe-Line Markers Used	Number Of Pipeline Accidents On R/W: Total	Number Due To Encroachments
10.	Pacific Gas Transmission	Aerial patrols, letters to owners and ads in papers	Annual letter	No	No	Pipeline markers and survey monuments	As needed	1983(1) 1980(1)	1980(1)
11.	Panhandle Eastern Pipeline	Yes. Through patrols and land agent visits	N/A	N/A	N/A	Pipeline markers	Fences and road crossings generally mark either end of urban blocks	N/A	N/A
12.	Shell Pipeline Co.	R/W inspections; remaining aware of land developments in progress	No	N/A	N/A	Posts, signs and mile markers for aerial patrol	Road, railway and water crossings	N/A	N/A
13.	Trans Canada Pipeline	Patrols and Land Rep visits	N/A	N/A	N/A	Painted fence posts; pipeline marker signs	Every road crossing and every property line; incl. urban lots	N/A	N/A
14.	Trans Mountain Pipeline	Follow up to aerial patrol	Dispensed by maintenance crews on individual basis	Specifications are given to developer for improved protection	No	Cleared R/W strip	At road crossings	No accidents in last 5 years	
15.	Pacific Northern Gas Ltd.	Aerial patrol	Mail booklet to selected companies (e.g. developers, surveyors); distribute to owners	No	No	Fence posts within R/W painted orange	All road crossings	One incident in 1980 when clearing contractor punctured pipeline.	
16.	GAZ Metropolitan	No	No	Purchase the R/W in fee	No	Marker posts	On each property	1983(2) 1982(3) 1981(5) 1980(4) 1979(6) 1978(4)	N/A N/A N/A N/A N/A N/A
17.	Westcoast Transmission	Aerial patrol	Mail booklet to selected companies (e.g. developers, surveyors); distribute to owners	In one case did relocate the pipeline. Pipeline will be upgraded if population density requires	No	Fence posts within R/W painted orange	All road crossings	One incident in 1965 when logging contractor punctured pipeline	
18.	B. C. Hydro	Advise via development review, design booklets	Brochures given to landowners. Design booklet for crossings of R/W	Renegotiate more stringent R/W agreement; relocate pipeline	No	Survey posts at property line/ R/W intersections	All road crossings, and some property lines	None	

N/A No Response
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